

BENCHMARK & DATUM ELEVATIONS TIDE STATION NUMBER: 872-6706 DATE: 02-17-2011

	BENCI	H MARK ELEVAT	IONS	
STA. NAME	NGVD 29	NGVD 29	NAVD 88	NAVD 88
	FEET	METERS	FEET	METERS
TBM NO 2 1949	+4.06	+1.236	+3.19	+0.973
HARRIS O	+24.61	+7.500	+23.74	+7.237
6706 A 2009	+4.99	+1.522	+4.13	+1.259
HARRIS S	+36.17	+11.026	+35.31	+10.763
HARRIS R	+32.67	+9.957	+31.80	+9.694

DATE:02-15-2011 TIDE STATION NUMBER: 872-6706 TIDE STATION NAME: CLEARWATER, FLORIDA - CLEARWATER HARBOR TIDAL EPOCH: 1983-2001

ELEV	OF	TIDAL	DATUMS	BASED	ON	1929	&	1988	DATUMS	

ridal	NGVD 29	NGVD 29	NAVD 88	NAVD 88
DATUM	FEET	METERS	FEET	METERS
MHHW	+1.85	+0.564	+0.99	+0.301
MHW	+1.50	+0.458	+0.64	+0.195
MSL	+0.57	+0.173	-0.30	-0.090
MTL	+0.56	+0.170	-0.31	-0.093
MLW	-0.39	-0.118	-1.25	-0.381
MLLW	-0.89	-0.272	-1.76	-0.535
MR =	1.89 29/ft 0.	.576 29/m	1.89 88/ft	0.576 88/m

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STATION ID:	8726706	PUBLICATION DATE:	04/29/2004
NAME :	CLEARWATER, CLEARWATER HARBOR	REVISION:	07/01/2011
	FLORIDA	SENT TO NOS:	07/01/2011
NOAA CHART:	11410	LATITUDE:	27Ø 57.3' N
USGS QUAD:	CLEARWATER	LONGITUDE:	82Ø 48.4' W

To reach the tidal bench marks from the intersection of U.S. Alternate Highway 19 (Fort Harrison Avenue) and State Road 697 (Bellview Avenue), proceed west on Bellview Avenue for 0.6 km (0.4 mi) to Druid Road South, then north on Druid Road South for 1.3 km (0.8 mi) to Magnolia Road, then west on Magnolia Road to its end. The bench marks are along Magnolia Road and Druid Road South. The tide gage and staff were on the pier at the end of Magnolia Road.

TIDAL BENCH MARKS

PRIMARY BENCH M	ARK STAMPING: DESIGNATION:	TBM NO 2 1949 872 6706 2	
MONUMENTATION:	Reference Mark Disk		VM#: 6786
AGENCY:	U.S. Coast & Geodetic S	Survey (USC&GS	PID#: AG0998
SETTING CLASSIFICATION:		2	·····
HORIZONTAL DATUM:	NAD 1983 (GPS Hand-held	1)	
LATTITUDE/LONGITUDE:	N275720.2/W0824821.7		
MAGNETISM:	NO		
FIELD VISIT DATE:	2009		

The primary bench mark is a disk set on a concrete sea wall at the foot of the west end of Magnolia Road, 6.98 m (22.9 ft) south of the south hand rail of the walkway to the Harbor Oaks Pier, 8.84 m (29.0 ft) south of the extended centerline of Magnolia Road, and 6.10 m (20.0 ft) ESE of power line pole #6A-11314, and 0.49 m (1.6 ft) north of the concrete wall.

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TIDAL BENCH MARKS

BENCH M	ARK STAMPING:	HARRIS O	
	DESIGNATION:	HARRIS O	
MONUMENTATION:	Survey Disk		VM#: 6789
AGENCY:	Pinellas County		PID#: AG0586
SETTING CLASSIFICATION:	Concrete Monument		
HORIZONTAL DATUM:	NAD 1983 (GPS Hand-held	L)	
LATTITUDE/LONGITUDE:	N275716.32/W0824818.2		
MAGNETISM:	NO		
FIELD VISIT DATE:	2009		
The bench mark is a dis	k set in the top of a co	oncrete monument, 1	block south
of bench mark NO 5 1975	, 10.36 m (34.0 ft) sout	h of the centerlin	e of Lotus
Path, 4.24 m (13.9 ft)	west of the centerline c	f Druid Road, and	0.79 m (2.6
ft) WSW of a witness po	st.		

BENCH MARK STAMPING:	6706 A 2009
DESIGNATION:	872 6706 A

MONUMENTATION:	Flange Encased Rod	VM#:
AGENCY:	National Geodetic Survey (NGS)	PID#: <u>DM3614</u>
SETTING CLASSIFICATION:	Stainless Steel Rod	
HORIZONTAL DATUM:	NAD 1983 (GPS hand-held)	
LATTITUDE/LONGITUDE:	N275713.3/W0824823.7	
MAGNETISM:	Steel Rod	
FIELD VISIT DATE:	2009	

To reach the mark from the intersection of Alternate 19 (South Fort Harrison) and Jeffords in Clearwater, go west on Jeffords Street for 0.5 km (0.3 mi) to the dead end turn-around and the mark, a stainless steel rod driven to refusal at a depth of 3.6 m (11.8 ft) with a National Geodetic Survey logo cap recessed 6 cm (0.2 ft) below the level of the ground and 15 cm (0.5 ft) below the level of the Jeffords Street, the datum point is recessed 24 cm (0.8 ft) below the level level of the National Geodetic Survey logo cap.

Located 19.8 m (64.8 ft) north of the southwest corner of the seawall, 8.6 m (28.2 ft) south-southwest of a 3.0 m (10.0 ft) tall concrete street light, 2.3 m (7.5 ft) south of the extended centerline of Jeffords Street, 0.7 m (2.3 ft) east of the east edge of the seawall and 0.5 m (1.8 ft) east of a carsonite witness post.

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TIDAL BENCH MARKS

BENCH MARK STAMPING:	HARRIS S
DESIGNATION:	HARRIS S

MONUMENTATION:	Survey Disk	VM#:	
AGENCY:	Pinellas County	PID#:	AG0589
SETTING CLASSIFICATION:	Concrete Monument		
HORIZONTAL DATUM:	NAD 1983 (GPS handheld)		
LATTITUDE/LONGITUDE:	N275655.63/W0824820.91		
MAGNETISM:	NO		
FIELD VISIT DATE:	2009		

To reach the station from the intersection of U.S. Alt. 19 (South Fort Harrison Ave.) and S.R. 697 (Bellview Ave.), run westerly on Bellview Ave. for 0.64 km (0.4 mi) to the intersection of Druid Rd. South. Turn right on Druid Road South and run northerly for 0.48 km (0.3 mi). Station is on left, 4.8 m (16.0 ft.) west of the centerline of Druid Rd., 10.9 m (36.0 ft.) W/NW of power pole, no number, 9.4 m (31.0 ft.) south of the light pole, no number, 5.8 m (19.0 ft.) E/SE of a 15 inch pine tree, 1.03 m (3.4 ft.) east of the back of curb. Set in top of a concrete post that is flush with the ground.

BENCH M	ARK STAMPING:	HARRIS R	
	DESIGNATION:	HARRIS R	
MONUMENTATION:	Survey Disk		VM#:
AGENCY:	Pinellas County		PID#: AG0588
SETTING CLASSIFICATION:	-		
HORIZONTAL DATUM:	NAD 1983 (GPS hand-held)	
LATTITUDE/LONGITUDE:	N275705.92/W0824819.6		
MAGNETISM:	NO		
FIELD VISIT DATE:	2008		

To reach the station from the intersection of U.S. Alt. 19 (South Fort Harrison Ave.) and S.R. 697 (Bellview Ave.), run westerly on Bellview Ave. for 0.64 km (0.4 mi) to the intersection of Druid Rd. South, turn right on Druid Rd. South and run northerly for 0.5 mile. Station on left, 6.13 m (20.1 ft) west of the centerline of Druid Rd., 2.44 m (8.0 ft) north of the extended centerline of Ricker Rd., 2.44 m (8.0 ft) north of a 10 inch palm tree, 5.30 m (17.4 ft) south of the south edge of a concrete driveway, 2.22 m (7.3 ft) west of the back of curb. Set in top of a concrete post that is flush with the ground.

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TIDAL DATUMS

Tidal datums at CLEARWATER, CLEARWATER HARBOR based on:

LENGTH OF SERIES:	11 MONTHS
TIME PERIOD:	NOVEMBER 1975-September 1976
TIDAL EPOCH:	1983-2001
CONTROL TIDE STATION:	8726724 CLEARWATER BEACH, GULF OF MEXICO

Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in METERS:

MEAN HIGHER HIGH WATER (MHHW)	=	0.836
MEAN HIGH WATER (MHW)	=	0.730
NORTH AMERICAN VERTICAL DATUM-1988 (NAVD)	=	0.535
MEAN SEA LEVEL (MSL)	=	0.445
MEAN TIDE LEVEL (MTL)	=	0.442
MEAN LOW WATER (MLW)	=	0.154
MEAN LOWER LOW WATER (MLLW)	=	0.000

Bench Mark Elevation Information	In METER	RS above:
Stamping or Designation	MLLW	MHW
TBM NO 2 1949 HARRIS O 6706 A 2009 HARRIS S HARRIS R	1.508 7.772 1.794 11.298 10.229	0.778 7.042 1.064 10.568 9.499

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DEFINITIONS

Mean Sea Level (MSL) is a tidal datum determined over a 19-year National Tidal Datum Epoch. It pertains to local mean sea level and should not be confused with the fixed datums of North American Vertical Datum of 1988 (NAVD 88).

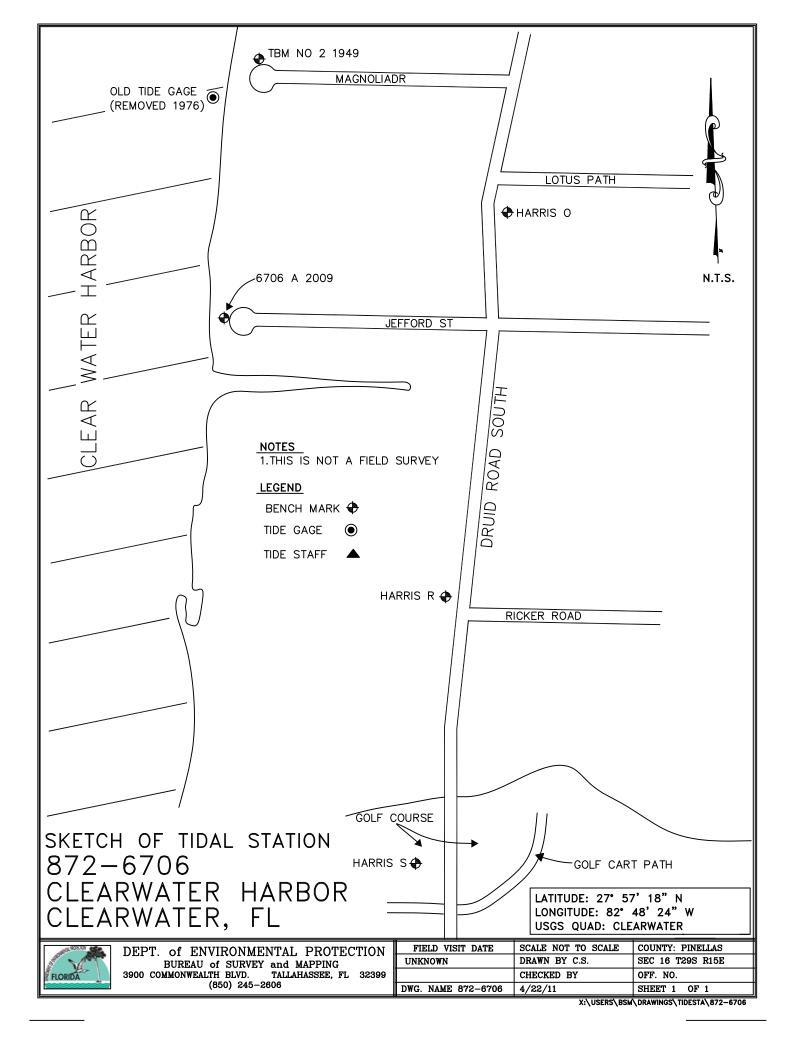
NGVD 29 is a fixed datum adopted as a national standard geodetic reference for heights but is now considered superseded. NGVD 29 is sometimes referred to as Sea Level Datum of 1929 or as Mean Sea Level on some early issues of Geological Survey Topographic Quads. NGVD 29 was originally derived from a general adjustment of the first-order leveling networks of the U.S. and Canada after holding mean sea level observed at 26 long term tide stations as fixed. Numerous local and wide-spread adjustments have been made since establishment in 1929. Bench mark elevations relative to NGVD 29 are available from the National Geodetic Survey (NGS) data base via the World Wide Web at <u>National</u> Geodetic Survey.

NAVD 88 is a fixed datum derived from a simultaneous, least squares, minimum constraint adjustment of Canadian/Mexican/United States leveling observations. Local mean sea level observed at Father Point/Rimouski, Canada was held fixed as the single initial constraint. NAVD 88 replaces NGVD 29 as the national standard geodetic reference for heights. Bench mark elevations relative to NAVD 88 are available from NGS through the World Wide Web at <u>National Geodetic Survey</u>.

NGVD 29 and NAVD 88 are fixed geodetic datums whose elevation relationships to local MSL and other tidal datums may not be consistent from one location to another.

The Vertical Mark Number (VM#) and PID# shown on the bench mark sheet are unique identifiers for bench marks in the tidal and geodetic databases, respectively. Each bench mark in either database has a single, unique VM# and/or PID# assigned. Where both VM# and PID# are indicated, both tidal and geodetic elevations are available for the bench mark listed.

The NAVD 88 elevation is shown on the Elevations of Tidal Datums Table Referred to MLLW only when two or more of the bench marks listed have NAVD 88 elevations. The NAVD 88 elevation relationship shown in the table is derived from an average of several bench mark elevations relative to tide station datum. As a result of this averaging, NAVD 88 bench mark elevations computed indirectly from the tidal datums elevation table may differ slightly from NAVD 88 elevations listed for each bench mark in the NGS database.





TBM NO 2 1949



HARRIS O



6706 A 2009



HARRIS S

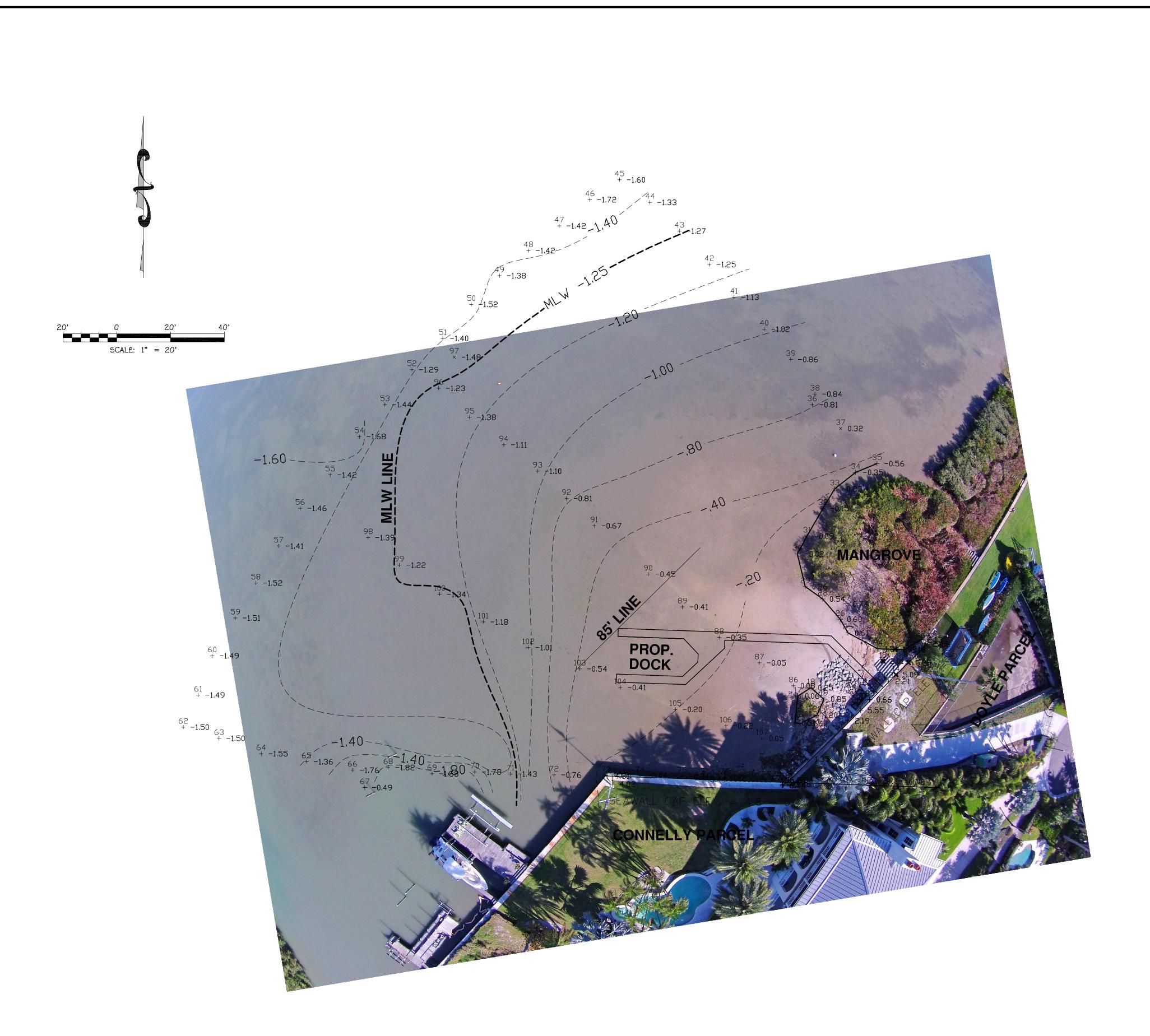


872-6706

CLEARWATER, FLORIDA CLEARWATER HARBOR

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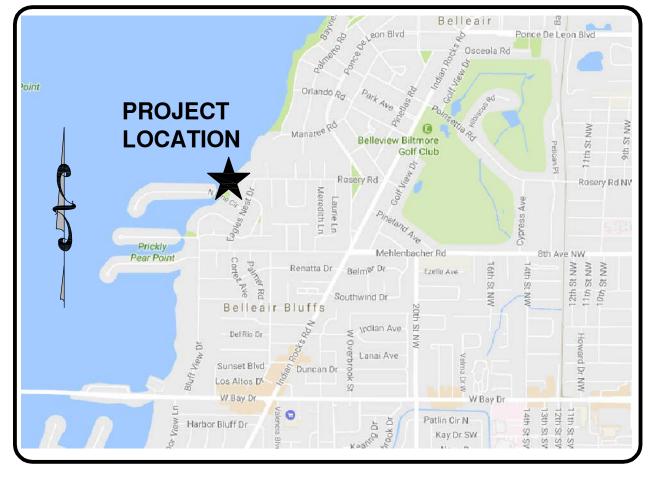
HARRIS R



MLW = ELEV. -1.25 NAVD 88 DATUM PER TIDE STATION 872-6706 BOTTOM ELEVATIONS WOULD NEED TO BE AT LEAST ELEVATION -3.75 TO HAVE 2.5 FEET DEEP AT MLW REQUIRING 3.5' OF BOTTOM TO BE DREDGED AT DOCK LOCATION

108 ● 9.71 109 + **9.59**

SECTION 29, TOWNSHIP 29 SOUTH, RANGE 15 EAST PINELLAS COUNTY, FLORIDA



PROJECT LOCATION NOT TO SCALE

SURVEYOR'S NOTES:

1. FIELD WORK COMPLETED 03-07-17

- 2. LEGAL DESCRIPTION SHOWN HEREON PER PUBLIC RECORDS
- 3. ELEVATIONS SHOWN HEREON REPRESENT NAVD88 DATUM AND ARE BASED ON PINELLAS COUNTY BENCH MARK NO. 750, ELEVATION 12.05. ONSITE TEMPORARY ENCH MARK IN NORTH RIM OF SANITARY MANHOLE LOCATED 12'+- EAST OF THE RADIUS POINT OF HARBORSIDE CIRCLE NORTH

4. AERIAL PHOTOGRAPH TAKEN 03-07-17

5. MEAN LOW WATER (MLW) ELEVATION OF -1.25 NAVD88 DATUM PER DATUM ELEVATIONS FOP TIDE STATION NUMBER 872-6706 DATED 02-17-2011 (CLEARWATER HARBOR)

CERTIFIED TO:

JOHN AND MARILYN CONNELLY JOHNSON POPE BOKOR RUPPEL & BURNS, LLP

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THE INFORMATION SHOWN HEREON IS A TRUE REPRESENTATION OF A SPECIFIC PURPOSE TOPOGRAPHIC SURVEY, PREPARED UNDER MY DIRECT SUPERVISION AND MEETS THE INTENT OF THE STANDARDS OF PRACTICE AS SET FORTH IN CHAPTER 5J-17.052 , FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027 FLORIDA STATUTES.

				NO. REVISION DATE
WILLIAM C. WARD, PLS Professional Land Surveyor s u r v e y o r - M a p e r - p L a N N e r BIO PINELAS BAYWAY, SUITE 5201, ST PETERSBURG, FLORIDA 33715 PHONE: 813-817-1115 NO				
DRAWN BY: BJW CHECKED BY: WCW	DATE: 3-07-16	JOB NUMBER: 17031	FILE: 17031 TOPO.DWG	
CONNELLY - DOYLE SPECIFIC PURPOSE TOPOGRAPHIC SURVEY 1 HARBORSIDE CIRCLE NORTH BELLEAIR, FLORIDA 34643				

OF 1

WILLIAM C. WARD PROFESSIONAL LAND SURVEYOR NO. 4815 STATE OF FLORIDA

3-08-17 DATE